



# BLOCKAGE OF THE SUEZ CANAL: RETHINKING OF THE GLOBAL SUPPLY CHAIN

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## ABSTRACT

For six days in March 2021, the megaship Ever Given's blockage of the Suez Canal dominated the news. Speculations about the ship's effects on the world economy and potential changes to the global supply chain industry followed the ship's release and the removal of the obstruction. 54 billion US dollars was expected to be the entire trade loss. But because it had an effect on commodities prices all over the world, the loss was anticipated to be in several billions. It was anticipated that the crisis' effects would linger long after the situation had concluded. There would be turbulent days ahead for the nations, businesses, and industries affected by this catastrophe worldwide. A German insurance company named Allianz estimates that the obstruction might have an annual impact on global trade of 0.2% to 0.4%. The lack of shipping containers in Asia was also made worse by the blockage. This momentarily caused a global semiconductor scarcity that impacted numerous manufacturing businesses, significantly delayed the export of consumer items, and spoiled countless commodities in route. According to some observers, the crisis brought on by the obstruction would hasten the transition of the global supply chain from JIT (Just-in-time) to JIC (Just-in-case).

**KEYWORDS:** Supply Chain Management, Suez Canal, Ever Given, Supply Chain Techniques, COVID-19

## INTRODUCTION

In March 2021, news of the megaship "Ever Given" obstructing the Suez Canal dominated headlines for six days. After the ship was liberated, there were conjectures about how the blockage might have affected the world economy and the potential changes it might have brought about in the global supply chain sector. A 54 billion USD estimate was made for the total trade loss. But because it affected commodity prices all across the world, the economic damage was anticipated to be in the billions of dollars. Countries, businesses, and sectors affected by this crisis were in for turbulent days ahead. The impact and significance of the crisis were anticipated to persist even after the occurrence had finished. Allianz, a German insurance company, estimates that each week of trade shutdown could have an annual impact on global trade of 0.2% to 0.4%.

The insufficient supply of shipping containers in Asia was made worse by the traffic delay brought on by this obstruction. This led to a temporary global semiconductor scarcity that negatively impacted numerous manufacturing businesses, prolonged the export of consumer goods, and spoilt countless commodities in route. According to some observers, the crisis brought on by the obstruction would hasten the transition of the global supply chain from JIT (Just-in-time) to JIC (Just-in-case).

### The Ever Given Incident

One of the biggest container ships in the world, the Ever Given Container Ship (Refer Exhibit I), blocked the Suez Canal on March 23, 2021. The ship measured 193 feet in width, 400 metres long, and 220,000 tonnes. After navigating through strong winds and a sandstorm that reduced visibility across the canal, the ship became jammed in the Suez Canal. The shortest water route between Asia and Europe is the Suez Canal, which links the Mediterranean water to the Red Sea (Refer Exhibit II). 369 vessels travelling through the canal from each end had to abruptly stop because of the obstruction. The Suez Canal Authority's chairman, Osama Rabie, said that, "The Canal's revenues were taking a hit of \$14-\$15 million (£10.2 million-£10.9 million) for each day of the blockage." Ever Given was hauling 18,300 containers when it was blocked.

A shipping and freight-forwarding company's director, Steve Parks, said, "We're waiting on food items like coconut milk and syrups, some motor replacement parts, some forklift vehicles, some Amazon things on there, all sorts. Everyone who uses our services has heard about it and is calling to find out when it will be fixed." On the Ever Given, the company had 20 containers of cargo. On March 29, 2021, the ship was finally released by operations including tug boats and dredge vessels after six days of nonstop work. At the time, it was said that the blockage's impact on traffic will be removed within a week.

Ever Given was impounded in Great Bitter Lake by the Suez Canal Authority (SCA) when the obstruction was removed. SCA demanded payment from the Ever Given owners. The compensation was intended to make up for the expenses of the rescue operation, harm to the banks of the canal, and other associated losses. "The vessel will remain here until the investigations are finished and compensation is given," said Osama Rabie. The SCA had requested \$916 million in compensation, which was made up of a \$300 million salvage bonus and an additional \$300 million for reputational damage. The settlement amount was

ultimately agreed upon at \$550m after extensive talks. After that, on July 7, 2021, the ship was released, ending the three-month saga. The Association for Supply Chain Management's Douglas Kent, executive vice president of strategy and partnerships, said "We might celebrate the success of releasing the ship and unblocking the Suez, but that's not the end of the narrative here. As a result, there will undoubtedly be a backlog in ports and other distribution systems, followed by the inevitable turmoil."

### Impact of the Incident

The blockade lasted six days, but it set off a chain reaction that was anticipated to disrupt the world's supply system for days to come. According to Dun & Bradstreet's Brian Alster, General Manager of Third-Party Risk & Compliance, "The current disaster becomes a global phenomenon because it is yet another reminder of the interconnectedness that comes with globalization and our reliance on one another as contributors to the global supply chain. The dependence that businesses have grown to have on foreign suppliers and other third parties is brought to light whenever a supply chain link is compromised. The Suez Canal tragedy provides yet another justification for firms to spend money on data and technology in order to build a flexible, dispersed supply chain that can quickly change course in the event of unforeseen circumstances."

According to Stephen Flynn, a political science professor at Northeastern University, "It's got to take at least 60 days before things get sorted out and appear to be a bit back to normal. The disruption of a week this large is going to continue to have cascading effects. You've essentially created a traffic jam that prevents you from simply resetting and restarting — you have to restack and reset the system, and that will require a lot of choreography. The Supply Chain has never been this stressed before, and it's going to take a really long time, and they're just beginning the process of sorting it out."

After the COVID-19 pandemic, the global supply chain was already having trouble (Refer Exhibit III). In addition to the worldwide shipping industry, numerous other companies including manufacturers, supermarkets, and retailers were also impacted by this blockage (Refer Table I). When the additional shipping operation costs, commodity prices, and shipping delays were taken into account, the blockage's economic impact was enormous. "While considerable attention has been paid to the economic value of cargo trapped on vessels and their inability to pass through the Suez Canal, the financial impacts on downstream production that depend on the timely delivery of these materials are orders of magnitude greater. For instance, the delay of a minor but significant automobile component coming from China may impede the sale of the entire vehicle in Germany. Global enterprises have a clear competitive edge thanks to their ability to see inside containers, analyze how delays in transportation affect downstream industries, and take methodical corrective action" said Pawan Joshi, Executive Vice President of Product Management and Strategy at E2Open I5.

EUROPE				
The Top Countries Impacted by the Blockage				
The United Kingdom	Germany	Belgium	France	The Netherlands
Italy	Switzerland	Spain	Austria	Turkey
The Top Materials found in Shipments through the Canal to Europe				
Vehicle Parts and Accessories	Garments	Electrical and Photosensitive Materials	Wheeled Toys	Copper
Machines and Mechanical Appliances	Plastics	Pharmaceutical Goods	Wine	
The Top Industries Impacted by the Blockage				
Eating and Drinking Establishments	Construction	Wholesale Trade	Chemicals and Allied Product - related Businesses	
Food Retailers	Industrial and Commercial Machinery and Equipment	Metal Production and Automotive Repair Services	Health Services	
THE UNITED STATES				
The Top Materials found in Shipments through the Canal to the United States				
Kitchen and Bathroom Linen	Electrical and Photosensitive Materials	Construction Materials such as Floor, Wall and Ceiling Polymers	Vehicle Parts and Accessories	Wheeled Toys
Furniture	Plastics	Athletic Equipment	Rubber	Pharmaceutical Materials
The Top Industries Impacted by the Blockage				
Grocery Stores	Departmental Stores	Auto and Hine Supply Stores	Hardware Stores	Surgical and Medical Equipment Suppliers
Plumbing Heating and Air-Conditioning	Semiconductors	General Warehousing and Storage	Trucking	Sporting Goods

Source: *Dun and Bradstreet*

**Table 1**  
**Impact of the Incident**

Many ships made the decision to change their course during the blockade and go around the Cape of Good Hope (Refer Exhibit IV). Rerouting though had its own expenses. It extended the vessel's journey by 8 to 10 days, adding to the cost. The ships would have travelled through the Somali coast, a region known for harboring pirates, on the Cape route, which was very risky. Director of Seaport Freight Services Steve Parks said, "Right now, there is only one method to get cargo through; go through the Horn of Africa, which will extend the route by an additional seven days. Covid, supply issues from the Far East, and changes to Brexit have all been issues. It was truly impossible to concoct. Just when things started to improve. Just as we were beginning to move past the lack of ships and containers, something occurs."

The largest shipping business in the world, Maersk, which transported cargo for H&M, Nike, and Unilever among others, reported having 29 ships waiting to enter the Suez Canal and three ships stranded in the canal. Almost 15 ships had to be redirected around South Africa's southernmost tip, which increased their travel time by about 10 days. An extremely active route for container ships was the Suez Canal. Around 12% of world trade travelled via the canal each day. One million barrels of oil and about 8% of liquefied natural gas were included in this. Data from Lloyd's List show that the blockade prevented the movement of more than \$9 billion worth of cargo and trade per day, or roughly \$400 million per hour.

A lack of containers put the world's shipping sector in a difficult predicament (Refer Exhibit V). Because of the congestion, the passage of empty containers was delayed, which made the situation worse. Due to the blockade, there was a major container scarcity, which caused container rates to reach an all-time high. Asia, which has the highest demand for empty containers, faced the toughest challenge. Empty containers were anticipated to arrive in Asia with a delay of 1-2 weeks as a result of the bottleneck, and the continent would likely experience a container shortage for an additional 2-3 months until things returned to normal. According to Jon Monroe, a marine trade and logistics specialist of Jon Monroe Consulting, "Containers are already scarce in China, and the backup in the Suez will put more strain on the inventory. We've returned to the situation just before Chinese New Year, when firms are operating at full capacity and are having trouble finding both containers and space for their final items."

According to analysts, the blocking of the canal will have the most effect on Europe. Asia-based businesses will be hampered in their efforts to ship goods throughout the world not only by the delay in shipments from Europe but also by a lack of empty containers returning to the region. India's import of oil was also anticipated to suffer significantly. On the premise that the blockade would

remain longer than two weeks, the price of significant commodities like crude oil and gas increased globally. With more than 500,000 barrels per day through the Suez Canal, India was the biggest importer of crude oil (Refer Exhibit VI). India imported over two thirds of its oil from the Middle East. The blockade may cause components for goods assembled in Europe and transported to the US to be delayed. On how the blockade will impact US consumers, there were a variety of opinions. According to Northeastern University political science professor Stephen Flynn, "prices in the U.S. will undoubtedly rise; as the world's interdependent supply chain continues to be pressured. We mostly took this conveyor belt, which is part of the maritime transportation system, for granted until it abruptly ceased moving [items]. Many of these second- and third-order consequences are going to occur."

On the other hand, according to Jeffrey Bergstrand, a finance professor at the Mendoza College of Business at the University of Notre Dame, "the incident involving the now-unblocked tanker Ever Given, which blocked the Suez Canal for about a week, will have only a minor and transient effect on prices of imported goods. Consumers in the US won't likely notice much of a difference in import pricing, with the exception of the extent to which intermediate products of US final goods are manufactured in Europe, because the majority of the imports stopped over the last week are destined for Europe. Similar opinions were expressed by Moody's Analytics' top economist, Mark Zandi (Zandi), who said that, "The U.S. and worldwide economies are unlikely to be significantly impacted by the canal blockage unless it lasts for several weeks or months. Oil prices may increase as a result, but we're talking pennies per barrel here, not dollars." However, according to Zandi, "Germany's economy could suffer if the blockade caused a delay in the delivery of auto parts to that company's major automakers." According to Sharat Ganapati, an economics expert at Georgetown University, "Spain, Italy, and France could see higher petrol prices because they rely on oil shipments through the canal."

According to the German insurance company Allianz, the blockade would cause losses in global trade of between US\$6 billion and US\$10 billion every week. Due to their shipments being delayed on the Suez Canal, numerous shops all over the world were already in pain and had incurred losses. According to a notice posted on Maersk's website, "The loss of capacity to be 20-30 percent over multiple weeks, depending on market dynamics." Due to the barrier, ships would need to stay out in the water for longer, which would raise the cost of shipping as well. According to the Freightos Baltic Index, the cost of shipping goods from China/East Asia to the Mediterranean increased 500% in March 2021, going from \$1,478 in that month to \$7,485 in that same month. Also rising by 278% from \$549 in March 2020 to \$1524 in March 2021, freight costs on the Mediterranean to China/East Asia route.

### The Global Supply Chain Reconsidered

The shipping industry had begun to float giant vessels (commonly referred to as megaships) carrying a massive number of commodities in order to get more products carried at one time. The worldwide shipping businesses benefited from economies of scale provided by these megaships. The corporations were able to save on fuel, lower the cost of shipping each container, and lessen the environmental impact of the ship by using one big ship to convey goods over international borders rather than floating several smaller ships. However, these enormous ships faced greater risks during emergencies. If the ship deviated from its plan (or route), the megaships were also to blame for an increase in expenditures. The ever-growing size of shipping boats was a concern for insurance companies as well, as risk increased with vessel size. According to Logistics UK's Alex Veitch, general manager of policy, "When they (big vessels) arrive up late or at the incorrect time, it puts a lot of pressure on ports to empty them fast so that they may proceed to the next destination. It then puts pressure on domestic transportation systems to deliver them to the stores on time, demonstrating how simple it is to disrupt almost an invisible network of goods-moving from source to shop."

The Suez Canal incident made it clear that supply chain choke spots might seriously disrupt international supply lines. International risk management and production specialist Usha Haley said that, "The crisis exposed the choke spots in our systems of international trade and manufacturing. It demonstrated that even our highly developed supply networks have significant weaknesses, to which businesses and the government will need to pay attention in a proactive rather than a reactive manner. To ensure that communication, energy, and transportation networks can withstand crises without halting the world trade system, both parties will need to prepare for, budget for, and put measures in place that avoid these single points of failure. In order to achieve this, organizational decentralization will be necessary in place of centralization, systemic redundancies will be needed in place of efficiency, and production diversity will be needed in place of specialization."

According to Lukas Kinigadner, CEO and co-founder of mobile data startup Anyline, "Our supply chains are the arteries of industry, and in the age of same-day delivery and 'just-in-time' inventory, even a minor blockage may cause difficulties and interruptions down the line. Oil prices have already increased as a result of the Suez Canal blockade, while automotive and computer makers have warned of a worsening chip scarcity." According to a survey conducted by the UK-based accounting firm BDO, 33% of manufacturing companies intended to

nearshoring manufacturing to the UK. As a result, supply chain management firms concentrated on automation and digital transformation.

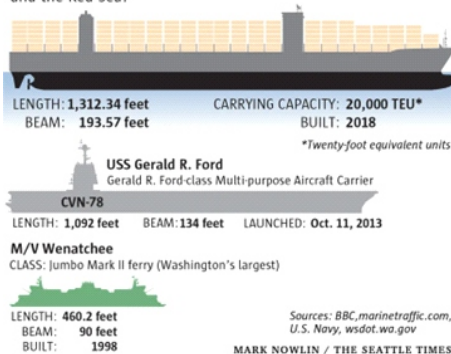
According to Peter Deans, the founder and risk and strategy consultant at 52Risks, "These types of occurrences underscore the necessity for firms [to] have a comprehensive awareness of their supply chains, understand 'what may go wrong,' and have contingency plans for these eventualities. This includes having the financial means to endure these occurrences. The precise events that can have an impact on a company's operations might be considered in scenario planning workshops. The COVID-19 epidemic has demonstrated how crucial it is to keep enough production inputs on hand to survive any prolonged external shocks and business disruptions." The president and CEO of a multinational manufacturing, engineering, technology, and product development company, Pivot International, Mark Dohnalek, expressed a similar viewpoint. He said, "Every company needs to have different sourcing choices in place, as we discovered during the epidemic. Dealing with a single favored vendor who has numerous operations in several different parts of the world would be another aspect of this advice. This will lessen the significant impact on their business that a single location event would have. By far, this is the most important factor in reducing future exposure to these kinds of incidents."

Maersk CEO Soren Skou said that, "The Suez Canal blockage and the coronavirus outbreak had caused businesses to reconsider their supply networks. Previously, businesses relied on "just in time" supply chains, in which goods were delivered to manufacturers just when they were required for production. Firms had to forecast demand because of this. Businesses are now keeping more inventory on hand to prevent shortages when disruptions arise. Not just-in-time, but just-in-case supply chains are what we are aiming for. People would consider their supply lines more after the incident in the Suez Canal. According to Pierre Subeh, a business expert and the COO of marketing technology company X Network, "Supply chains are frequently organized based on demand, and financial controllers suggest only buying what is required up to the next scheduled cargo shipment. However, a lack of inventory may send any business into a tailspin, and many don't make it out alive. Customers have the option to shop at rival businesses when there is no inventory. Financial controllers should never be the only ones making judgements on inventory; corporate executives should take these decisions more seriously."

### Exhibit I Ever Given Ship

#### How big is the MV Ever Given?

The massive Ever Given container ship hit the right bank of the Suez Canal on Tuesday, blocking all shipping traffic from using the 120-mile-long canal that connects the Mediterranean Sea and the Red Sea.



One of the world's largest container ships is Ever Given. Taiwanese shipping firm Evergreen Marine sails the vessel. The ship was created in 2018. Ever Given is one of 13 container ships constructed by Imabari Shipbuilding, 11 of which have been rented by Evergreen Marine and have names that begin with Ever G. The ship can transport 20,000 containers at once and is 400 meters long and 59 meters broad.

Source: Compiled from various sources

### Exhibit II Suez Canal

The Suez Canal is a man-made, sea-level waterway that connects the Red Sea and Mediterranean Seas by spanning Egypt's Isthmus of Suez from north to south. Africa and Asia are separated by the canal. Additionally, the canal links Port Said in northeastern Egypt with Port Tewfik in the southern metropolis of Suez. In 1869, the canal was completed. It was increased in 2015 to incorporate a 22-mile parallel canal. It is among the most significant canals in the world and is essential to international trade. The canal is the quickest route between the Atlantic Ocean and Indian Ocean. The canal's tolls are a significant source of revenue for the Egyptian government. A daily average of 1 million barrels of oil and 8% of the world's LNG traffic flow through the canal. The worldwide demand-supply chain is likely to be negatively impacted by any unfavorable changes in the area. Due to its Middle Eastern location, the Suez Canal serves as a

key transportation route for oil produced in one country to many other nations around the globe.

Source: Suez Canal Authority

### Exhibit III Impact of COVID-19 on Global Supply Chain

The COVID-19 pandemic, which shook the world throughout 2020 and a good portion of 2021, also caused substantial difficulties for supply networks around the world. The movement of raw supplies and finished items was hindered or even temporarily stopped by numerous nationwide lockdowns, which disrupted industry. The systems of trade, finance, health, and education, as well as enterprises and society, were all affected. The foundation of the global logistical system, shipping, was also impacted. Ships found it more and more difficult to dock, load, and disembark due to COVID-19 regulations, regional limits, and limited port labor capacity. All supply chains were thus affected, including those for just-in-time food logistics services and other essential items. The pandemic's impact on the global supply chain's various stages is depicted in the following diagram.

Lockdowns caused suppliers in the worldwide supply chain to temporarily halt manufacturing as well, and logistics providers were unable to deliver items as smoothly going forward, particularly across borders. Mid-February saw the announcement by Fiat Chrysler Automobiles that it would temporarily cease production at a vehicle factory in Serbia due to a shortage of parts from China (China played a significant role in the global supply chain). Similar news was released by Hyundai regarding its factories in Korea. Prior to COVID-19, a sizable proportion of commerce cargo was transported internationally by air, but the number of flights fell by 55% as a result of the pandemic. According to a study by Ernst & Young, the COVID-19 pandemic exacerbated existing supply chain problems and placed a higher priority on supply chain visibility, resilience, and digitization.



Source: Compiled from various sources

### Exhibit IV An Alternative Route whilst Suez Canal was Blocked



Source: Vessels Value

### Exhibit V Container Shortage in the International Shipping Sector

The COVID19 epidemic has had an effect on a number of different industries, including the international shipping sector. The shipping sector relies heavily on shipping containers. The vast majority of goods and parts that move through the global supply chain are transported in these containers as they cross oceans, railroads, and roads. Before COVID-19, ships often found a berth when they arrived at a port so they could unload their containers and get reloaded with new ones. Trucks arrived quickly to transport the empty containers to their final destination. As a result, container transfer and turnaround were successful. The entire process underwent a shift after the pandemic. Every step of the procedure was delayed.

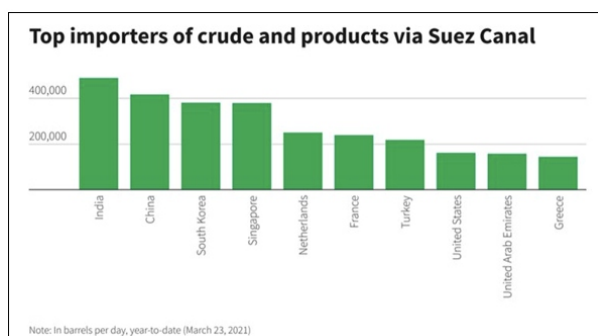


Shipping companies started limiting the amount of cargo ships that were sent out as a result of lockdowns brought on by COVID-19. Due to this, empty containers were not collected in addition to the normal flow of imported and exported products being blocked. The most notable instance of this was in the American regions, where Covid19 limitations prevented the return of Asian containers. Many containers were in inland depots, in cargo ports, transshipment hubs such as Singapore, and onboard vessels, especially on trans-Pacific lines. Other nations were still subject to national lockdown limitations as Asia slowly started to recover, which prevented containers from being transferred back to Asia (where there was a severe shortage) to continue the trading alliance.

The global container scarcity had a heavy toll on many industry heavyweights, including Maersk and Hapag-Lloyd. Hexstone Group CEO and vice-chairman of the British and Irish Association of Fastener Distributors Ian Doherty stated, "We have goods that we are unable to transport because we haven't been able to get containers. Our inability to reach the Far East has caused delays of up to six to eight weeks when we had ready-to-ship items. A true impact is made. We haven't had a single boat dock on schedule, as far as I can tell. We are constantly having containers put back."

Source: Compiled from various sources

**Exhibit VI**  
**Top Importers of Crude Oil and Products via Suez Canal**



Source: Pranav Mukul and Anil Sasi, "Explained: Why India's crude oil price could rise following blockage of Suez Canal," *Indian Express*.

#### Data Availability Statement

The data used to support these findings of this study are included within the paper.

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